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Transportation and Land Use Technical Work Group
Policy Option Descriptions
For the May 16, 2006 CCAG Meeting

Table 7.

Transportation and Land Use Technical Work Group

Summary List of Draft Policy Options (6 Total)

#	Policy Name	GHG Savings (MMtCO2e)	Cost-Effectiveness ($/tCO2e)
	PASSENGER VEHICLE GHG EMISSION RATES		
TLU-1	California GHG Emission Standards	2010: 0.3 2020: 5.6	-$94.58
	LAND USE AND LOCATION EFFICIENCY		
TLU-2	Smart Growth Bundle of Options	2010: 0.6-3.2 2020: 0.7-4.0	Net Savings
	INCREASING LOW-GHG TRAVEL OPTIONS		
TLU-3	Multimodal Transit Bundle of Options	TBD	TBD
	FREIGHT		
TLU-4	Reduction of Vehicle Idling *(new TLU-4 combines former TLU-4 and -5)*	2010: 0.3-0.5 2020: 0.5-0.7	-$61 to -$107
	FUELS		
TLU-5	Standards for Alternative Fuels	N/A	N/A
TLU-6	Gasoline Tax	N/A	N/A

Table 8.

Description of Draft Transportation and Land Use Policy Options

PASSENGER VEHICLE GHG EMISSION RATES

TLU-1 California GHG Emission Standards

Policy Description: Adopt the California GHG emission standards (also known as the "Pavley" standards or "Clean Car Program") in order to reduce the net emissions of GHG's from passenger vehicle operation.

Policy Design: New cars and light trucks in all states must comply with Federal emission standards, and, generally speaking, states have the choice of adopting a stronger set of standards applicable in California. In 2005, California finalized a set of standards that would require reductions of GHG emissions of about 30 percent from new vehicles, phased in from 2009 to 2016, through a variety of means. The standards must still be approved by USEPA, and face a court challenge.

Implementation method(s): Standards take effect in Model Year 2011 (calendar year 2010)

Related Policies/Programs in place: Federal regulation of tailpipe emissions and fuel economy.

Types(s) of GHG Benefit(s): Overwhelmingly CO2 reductions.

Estimated GHG Savings and Costs Per Ton (for quantified actions):

	2010	2020	Units
GHG Emission Savings	N/A	5.0	MMtCO2e
Net Present Value (2006-2020)		-$2,944	$million
Cumulative Emissions Reductions (2006-2020)		31.1	MMtCO2e
Cost-Effectiveness		-$94.58	$/tCO2e

Data Sources, Methods and Assumptions (for quantified actions):

- **Data Sources:** Diane Brown and Elizabeth Ridlington , Cars and Global Warming: Policy Options to Reduce Arizona's Global Warming Pollution from Cars and Light Trucks, AZ PIRG Education Fund: February 2006, http://www.arizonapirg.org/AZ.asp?id2=22371 . CCS, Arizona Greenhouse Gas Inventory and Reference Case Projections, 1990-2020, March

2006.

- **Quantification Methods:** The AZ PIRG report used a model of light duty vehicle fleet comparing the difference between base case emissions and emissions with fleet penetration over time of vehicles that meet lower GHG emissions standards consistent with the California regulations. The AZ PIRG model calculated light duty vehicle fuel use and emissions based upon scientifically valid methods. (See extended discussion in AZ PIRG report, pp. 22-26).
- CCS compared the AZ PIRG model results to results for the New England states and California that were obtained using comparable modeling methods. CCS found that while all three modeling efforts were scientifically valid and comparable, some of the AZ PIRG model assumptions and methods were relatively conservative, while the California and New England modeling results were relatively optimistic. CCS further refined the AZ PIRG model results consistent with a middle range scenario that produced results less conservative than the AZ PIRG results and less optimistic than the California and New England results. While AZ PIRG projected a 13.7% reduction in light duty vehicle emissions with this policy, the CCS refinement estimates a 15.5% reduction in emissions. CCS applied this refined percentage reduction in emissions to the ACCAG approved reference case scenario to obtain a net estimated reduction of 5.6 MMtCO2e in 2020.
- This analysis assumes the program will start with the 2011 model year. Some 2011 model year vehicles will be on the market in calendar year 2010, and so there are some small emissions reductions that are foreseeable for that first year of sales/implementation. ***A CCS memo providing more details is in progress.***
- **Key Assumptions:** The three modeling efforts have established a generally acceptable scientific method of projecting GHG emissions reductions from this policy. The CCS comparison of the three modeling methods provides some independent professional validation of the models and their results. The key assumption of the emissions reduction projected by CCS is that the most likely scenario for emissions reductions is one that would fall between the more conservative scenario projected by the AZ PIRG model and the more optimistic scenario projected by the California and the New England models.

Key Uncertainties: Fleet turnover rates for light duty vehicles and future patterns of consumer purchase choices between passenger cars and light duty trucks (i.e. SUVs).

Ancillary Benefits and Costs, if applicable: Some reduction in criteria pollutants.

Feasibility Issues, if applicable: Light Duty Vehicle GHG emissions standards can be met with existing 'off-the-shelf' automotive technologies that are already in the marketplace.

Status of Group Approval: (Pending or Completed)

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):

LAND USE AND LOCATION EFFICIENCY

TLU-2 Smart Growth Bundle of Options

Policy Description: This bundle of options encompasses four components related to reducing GHG emissions through land use practices and policies. These policies contribute to GHG emission reductions by reducing vehicle trips and total vehicle miles traveled.

Policy Design: Smart growth actions include the following programs and program elements:

- **Infill and Brownfield redevelopment.** Shifting housing and commercial development toward location efficient sites, such as brownfields and infill projects, and away from location inefficient sites, such as greenfields, can reduce overall travel demand and expand lower emitting mode choices. Brownfields are commercial or industrial properties that are abandoned or are not being fully used because of actual or perceived environmental contamination. These properties have potential for redevelopment, but the uncertainty and risk of environmental liability and the cost of investigation and cleanup keep them from being redeveloped. Brownfields can be former industrial properties, abandoned gas stations, vacant warehouses, or former dry-cleaning establishments. Redevelopment of these environmentally contaminated properties creates jobs, revitalizes neighborhoods, increases property and sales tax revenues, decreases urban sprawl, and reduces potential health risks to the local community. Infill development can also revitalize neighborhoods, increase tax revenues, and decrease urban sprawl.
- **Transit-oriented development** includes a shift to lower emitting mode choices by building compact development around transit stops to meet daily needs by foot, bicycle, or transit and/or by clustering employment centers around transit stops.
- **Smart growth planning,** modeling, and tools includes a number of practices aimed at encouraging location efficient growth in communities that are proximate to household amenities (such as jobs, shopping, school, services, entertainment, etc.) as opposed to growth in areas that are not proximate and require greater travel distance and have less mode choice. Smart growth allows for mixed land uses within a project with a range of housing opportunities and multiple transportation options including pedestrian/bike access.
- **Targeted open space protection** includes programs designed to protect and conserve State lands and other open spaces, and develop and improve neighborhood, community, and regional parks in ways that encourage location efficient growth and broader mode choice.

Specific policy measures would include:

- Promote use of authority under Growing Smarter/Plus by counties to impose development fees consistent with municipal development fee statutes.
- Promote smart growth principles in new development by requiring bidders to include

defined smart growth principles in bid packages.

- Promote use of authority under Growing Smarter/Plus by cities to create infill incentive districts and plans that could include expedited process incentives.
- Promote use by cities of a fee waiver system, similar to Phoenix Infill Housing Program, to encourage development of single-family owner-occupied housing on vacant, orphaned, or underutilized land located in the mature portions of Arizona.
- Provide technical assistance to communities that want to pursue Smart Growth and disseminate lessons learned in cities such as Phoenix and Tucson.
- Provide Smart Growth information tools that identify the qualitative (e.g., improved quality of living) and quantitative benefits (e.g., reduced vehicle operation costs) of these Smart growth communities.
- Encourage lenders to apply location-efficient mortgage principles, so transportation cost savings is recognized when calculating a household's borrowing ability.
- Encourage cities to review (and update where appropriate) their engineering plans and standards to make new road and sidewalk infrastructure friendlier to bikes and pedestrians.
- Promote telecommuting.[1]
- Promote affordable housing in new developments.

Scrutinize or carefully review land swaps that lead to undesirable development patterns.

- **Goal levels:** Target a reduction in growth in VMT from passenger vehicles of [2%-11%] in the years 2007-2020 through a combined approach utilizing a number of programs that fall under those listed above.

Implementation method(s): *See design section above.*

Related Policies/Programs in place:

Types(s) of GHG Benefit(s): Overwhelmingly CO2 reductions

Estimated GHG Savings and Costs Per Ton (for quantified actions):

	2010	2020	Units
GHG Emission Savings (2% case)	0.6	0.7	MMtCO2e
GHG Emission Savings (11% case)	3.2	4.0	MMtCO2e
Net Present Value (2006-2020)		IP	$million
Cumulative Emissions Reductions (2006-2020)		IP	MMtCO2e

[1] There was also a suggestion of Hybrid access to HOV lanes, but this will go elsewhere, not part of Smart Growth

Cost-Effectiveness	IP	$/tCO2e

Data Sources, Methods and Assumptions (for quantified actions):

- **Data Sources:** CCS, Arizona Greenhouse Gas Inventory and Reference Case Projections, 1990-2020, March 2006. Extensive Smart Growth literature.
- **Quantification Methods:** Modified AZ reference cast forecast for 2008-2020 using 2% - 11% reduction in VMT.
- **Key Assumptions: The value used for reduction in VMT. Also assumes de minimus increases in GHG emissions from increased use of alternate transit modes.**

Key Uncertainties: What reduction in VMT growth can be achieved.

Ancillary Benefits and Costs, if applicable: Reduced infrastructure costs, avoided health care costs via reduced air pollution and increased walking/biking, other quality-of-life aspects. However, there will be front-end costs of program development and implementation for brownfields, infill, transit-oriented development programs. A successful program requires dedicated resources to ensure redevelopment is achieved. There are grants available from the EPA that assist with the initial establishment of a program or to fund environmental activities for a specific project; however, successful local and state brownfields programs have a dedicated source of funds for the program. Financial resources are required to fund staff (at least one full-time employee is typical), administrative expenses, promotion, education, etc. on an annual basis, which has averaged approximately $200,000 per year for the City of Phoenix.

A successful program also requires providing financial incentives to encourage private sector investment. Most federal brownfields programs are not available directly to the private sector; therefore, the most effective programs nationwide provide local or state financial assistance. In the City of Phoenix, capital improvement bond funds are used to provide financial assistance directly to the private sector and to encourage the use of brownfields for public facilities. Phoenix secured $3.4 million from the 2000 Phoenix Bond Program and recently obtained $4 million from the 2006 program specifically for brownfields redevelopment.

Policy Design: Smart growth actions include the following programs and program elements:

- **Infill and Brownfield redevelopment.** Shifting housing and commercial development toward location efficient sites, such as brownfields and infill projects, and away from location inefficient sites, such as greenfields, can reduce overall travel demand and expand lower emitting mode choices. Brownfields are commercial or industrial properties that are abandoned or are not being fully used because of actual or perceived environmental contamination. These properties have potential for redevelopment, but the uncertainty and risk of environmental liability and the cost of investigation and cleanup keep them from being redeveloped. Brownfields can be former industrial properties, abandoned gas stations, vacant warehouses, or former dry-cleaning establishments. Redevelopment of these environmentally contaminated properties creates jobs, revitalizes neighborhoods, increases property and sales tax revenues, decreases urban sprawl, and reduces potential health risks to the local community. Infill development can also

revitalize neighborhoods, increase tax revenues, and decrease urban sprawl.

- **Transit-oriented development** includes a shift to lower emitting mode choices by building compact development around transit stops to meet daily needs by foot, bicycle, or transit and/or by clustering employment centers around transit stops.
- **Smart growth planning,** modeling, and tools includes a number of practices aimed at encouraging location efficient growth in communities that are proximate to household amenities (such as jobs, shopping, school, services, entertainment, etc.) as opposed to growth in areas that are not proximate and require greater travel distance and have less mode choice. Smart growth allows for mixed land uses within a project with a range of housing opportunities and multiple transportation options including pedestrian/bike access.
- **Targeted open space protection** includes programs designed to protect and conserve State lands and other open spaces, and develop and improve neighborhood, community, and regional parks in ways that encourage location efficient growth and broader mode choice.

Specific policy measures would include:

- Promote use of authority under Growing Smarter/Plus by counties to impose development fees consistent with municipal development fee statutes.
- Promote smart growth principles in new development by requiring bidders to include defined smart growth principles in bid packages.
- Promote use of authority under Growing Smarter/Plus by cities to create infill incentive districts and plans that could include expedited process incentives.
- Promote use by cities of a fee waiver system, similar to Phoenix Infill Housing Program, to encourage development of single-family owner-occupied housing on vacant, orphaned, or underutilized land located in the mature portions of Arizona.
- Provide technical assistance to communities that want to pursue Smart Growth and disseminate lessons learned in cities such as Phoenix and Tucson.
- Provide Smart Growth information tools that identify the qualitative (e.g., improved quality of living) and quantitative benefits (e.g., reduced vehicle operation costs) of these Smart growth communities.
- Encourage lenders to apply location-efficient mortgage principles, so transportation cost savings is recognized when calculating a household's borrowing ability.
- Encourage cities to review (and update where appropriate) their engineering plans and standards to make new road and sidewalk infrastructure friendlier to bikes and pedestrians.
- Promote telecommuting.[2]

[2] There was also a suggestion of Hybrid access to HOV lanes, but this will go elsewhere, not part of Smart Growth

- Promote affordable housing in new developments.

Scrutinize or carefully review land swaps that lead to undesirable development patterns.

- **Goal levels:** Target a reduction in growth in VMT from passenger vehicles of [2%-11%] in the years 2007-2020 through a combined approach utilizing a number of programs that fall under those listed above.

Key Uncertainties:

Ancillary Benefits and Costs, if applicable:

Feasibility Issues, if applicable:

Status of Group Approval: (Pending or Completed)

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):

INCREASING LOW-GHG TRAVEL OPTIONS

TLU-3 Multimodal Transit Bundle of Options - *IN PROGRESS*

Policy Description: This bundle of options includes actions to shift passenger transportation mode choice (auto, bus, rail, bike, pedestrian, etc.) to lower emitting choices, and includes: make better use of CMAQ funds; expand transit infrastructure (rail, bus, BRT); improve transit service, promotion, and marketing; improve bike and pedestrian infrastructure; explore commuter rail using existing rail corridors; consider re-establishing train service between Phoenix and Tucson; review all proposed transportation projects for multi-modal flexibility (e.g., add light rail if feasible); conduct research into new transportation technologies and urban planning techniques.

Policy Design: Target an overall shift in mode choice for passenger travel from the existing reference case of _____ to a new scenario of _____ by year 20xx through a combined approach utilizing a number of programs that fall under those listed above.

- **Goal levels:**
- **Timing:**
- **Parties:**
- **Other:**

Implementation method(s): (provide category from standard CCS list, with details as needed)

Related Policies/Programs in place:

Types(s) of GHG Benefit(s): (indicate which GHGs to be reduced)

Estimated GHG Savings and Costs Per Ton:

- GHG potential in 2010, 2020
- Net Cost per Ton in 2010, 2020

Data Sources, Methods and Assumptions (for quantified actions):

- **Data Sources:**
- **Quantification Methods:**
- **Key Assumptions:**

Key Uncertainties:

Ancillary Benefits and Costs, if applicable:

Feasibility Issues, if applicable:

Status of Group Approval: **(**Pending or Completed)

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):

FREIGHT

TLU-4 Reduction of Vehicle Idling

Policy Description: Reduce idling from diesel and gasoline heavy-duty vehicles, buses, and other vehicles through the combination of a Statewide anti-idling ordinance and by promoting and expanding the use of technologies that reduce heavy-duty vehicle idling, including: automatic engine shut down/start up system controls; direct fired heaters (for providing heat only); auxiliary power units; and truck stop electrification.

Policy Design: Currently, only Maricopa County has an anti-idling ordinance. This ordinance has not been enforced due to a lack of enforcement funding and enforcement authority. This policy would build off of the Maricopa County ordinance, strengthen it, and make it applicable statewide by the end of 2008. The statewide ordinance should be designed to be easily enforceable by the appropriate state and local agencies, and should have a dedicated state funding stream for enforcement. The ordinance would also need to limit exemptions as much as possible, to make it easier to enforce.

This measure will also reduce idling from heavy-duty vehicles through programs aimed at increasing voluntary adoption of idle reduction technologies. ADEQ and the county agencies

would collaborate on outreach and education beginning in the year 2008, to coincide with the implementation and enforcement of a statewide anti-idling ordinance. The State would also seek funding for pilot projects and demonstrations from CMAQ (Congestion Mitigation Air Quality) funds, as well as funds available through EPA, DOE, and DOT. These pilot programs could be used to evaluate the effectiveness of various idle reduction technologies prior to more widespread use throughout the state. Pilot projects could include truck stop electrification as well as an expanded school bus pilot program. The outreach materials should emphasize the benefits of reducing idling, including a reduction in fuel costs, GHG emissions, and toxic emissions.

- **Goal levels:** Implement a statewide vehicle idling restriction ordinance that can be enforced and that minimizes allowable exemptions, and provide the necessary resources for enforcing the ordinance. Develop and pilot truck stop electrification programs. Target an overall reduction in idling of 50% by year 2010.
- **Timing:** Have ordinance in place by 2008.
- **Parties:** Industry, ADEQ, Counties, school districts, truck stop owners

Implementation methods:

Information and education: Provide general public, trucking industry, and bus companies with information indicating when and where idling is prohibited, and under what circumstances it is permitted. Indicate the GHG and other benefits of reducing idling, including toxic emission reductions and fuel savings. Provide a hotline number to call to report violations. Encourage trucking companies to do their own policing of measure. Also reach out to busing companies, school districts, and truck stop owners to make bus and truck drivers aware of idling restrictions. Ensure that signs are also posted in venues associated with bus idling (e.g., sporting events, shows, etc.). Emphasize the fuel savings benefits, reductions in toxic emissions, and reduced engine wear associated with reducing idling

Provide information to fleet carriers, shippers, retailers, bus companies, school districts, and others involved in the diesel fleet industry indicating the economic benefits, as well as the environmental benefits, of applying idle reduction technologies. Also, identifying best practices within the industry and recognizing companies with these best practices in place within Arizona should be used to encourage companies to select these carriers for their shipments. Develop outreach materials with cost benefits information and toxic diesel health impacts. Outreach materials should also be geared toward making the general public aware of the GHG, toxics, and fuel-saving benefits of eliminating idling on personal vehicles, as well as on trucks and buses. Expand school bus idling program based upon the pilots currently being conducted.

Technical assistance: Coordinate with anti-idling product manufacturers to organize workshops/outreach programs to regulated community to let them know of technological options that provide alternatives to the need for idling including products for cabin comfort, power for other functions (e.g., refrigerated trucks), and engine warm-up.

Funding mechanisms and or incentives: Propose legislation to partially fund idling technology loan grants for truck stop electrification and other idle reduction technologies in the State, focusing grants on high idling areas. Determine a dedicated funding stream that can be used to

fund enforcement of anti-idling ordinance as well as for continued education and outreach. Funding the enforcing agency with an adequate share of the revenue from using the idling reduction facilities could be an option. CMAQ funds and federal money may be available for idle reduction programs. A plan needs to be developed to apply for the funds.

Voluntary and or negotiated agreements: Work with regulated entities to promote voluntary compliance assistance through distribution of materials, staff training, etc. Encourage participation in EPA's SmartWay Transport Partnership (or similar programs).

Codes and standards: Include proper language in ordinance so that the agency with enforcement responsibilities is clearly delineated and has full authority to enforce the ordinance. The language of the statewide ordinance should also make enforcement straightforward (e.g., such that any exemptions to the idling policy can be easily observed).

Pilots and demos: Coordinate with product developers to help them promote their technologies. Investigate availability of funds for pilot or demo projects on idle reduction technologies from EPA, DOE, and DOT. If funding is available, develop a pilot program to evaluate the effectiveness of various idle reduction technologies, including implementation of truck stop electrification and expanded school bus idling program. Evaluate the effectiveness of the pilot programs before implementing on a broader scale.

Reporting: Develop a system for tracking violations so that the State can eventually determine compliance rates and benefits achieved from the ordinance.

Enforcement: Phase enforcement program to initially conduct outreach (Phase 1), provide warnings for a limited period of time (Phase 2), then issuance of tickets (Phase 3).

Related Policies/Programs in place:

Idling restrictions are currently in place in Maricopa County. House Bill 2538, (2001 regular session) requires counties containing portions of Area A to implement and enforce ordinances limiting maximum idling time for Heavy Duty Diesel Vehicles weighing over 14,000 pounds gross vehicle weight rating (GVWR). Other counties in Arizona also have the option of adopting an ordinance. The Maricopa County ordinance states "No owner or operator of a vehicle shall permit the engine of such vehicle to idle for more than five (5) consecutive minutes except as provided in Section 4 (Exemptions) of this ordinance." Violators are subject to a civil penalty of $100 for the first violation and $300 for a second or any subsequent violation, and can be enforced by any law enforcement officer on private/public property. Truck stop/distribution center owners/operators are required to erect signs indicating the maximum idling time in Maricopa County is 5 minutes. Exemptions are allowed under a number of conditions. To date, however, no violators of this ordinance have been fined. (Maricopa County Ordinance can be found at http://www.maricopa.gov/aq/rules/docs/fin-VIRO.pdf)

ADEQ School Bus Idling program. A number of school districts are participating with ADEQ in their School Bus Idling Pilot project. Key elements of this project include having drivers turn off buses upon reaching a school or other location and not turn on the engine until the vehicle is ready to depart; parking buses at least 100 feet from a school air intake system; and posting appropriate signage advising drivers to limit idling near the school. This program could be expanded throughout the state.

Idle reduction programs are currently being used by some shippers/carriers/retailers in Arizona. As an example, Swift Transportation is a charter member of EPA's SmartWay Transport program. This company maintains a modern fleet with an average vehicle age of less than 3 years old. Idle strategies used include optimized idle and other technologies as well as driver training.

Types(s) of GHG Benefit(s):

Reducing idling will reduce black carbon emissions, as well as all other GHG exhaust emissions (CO2, CH4, N2O) through reduced fuel consumption. However, it is important to also ensure that any technologies used to reduce idling have lower emissions than the diesel truck idling emissions they are replacing.

Estimated GHG Savings and Costs Per Ton (for quantified actions):

	2010	2020	Units
GHG Emission Savings	0.3-0.5	0.5-0.7	MMtCO2e
Net Present Value (2006-2020)	-$277 to -$696		$million
Cumulative Emissions Reductions (2006-2020)	4.5 to 6.5		MMtCO2e
Cost-Effectiveness	-$61 to -$107		$/tCO2e

Data Sources, Methods and Assumptions:

- **Data Sources:**

American Transportation Research Institute, "Idle Reduction Technology: Fleet Preferences Survey," February 2006 for technology costs.

EPA Smartway Transportation Partnership (http://www.epa.gov/otaq/smartway/idlingtechnologies.htm#truck-mobile) for technology costs.

"Analysis of Tehcnology Options to Reduce the Fuel Consumption of Idling Trucks," ANL/ESD-43, Argonne National Laboratory, Transportation Technology R&D Center, June 2000 for information on technology impacts.

Data from EPA's MOBILE6 model were used to estimate the proportion of CO2 emissions attributable to Class 8 trucks.

Data from USDOE/EIA *Annual Energy Outlook 2005* were used to estimate the amount of fuel consumed annually per truck.

- **Quantification Methods:**

The estimated reduction in CO2 emissions from reduced idling was calculated based on estimating the portion of emissions and fuel consumption in the AZ inventory that were attributable to Class 8 diesel trucks, estimating the portion of the total fuel consumption that would be consumed during idling, and applying a targeted reduction of 50 percent to this amount.

- **Key Assumptions:**

This analysis assumes idle reductions are achieved only by Class 8 diesel truck population; these trucks idle for an average of 6 hours per day; they consume 0.8 to 1.2 gallons of diesel per hour during idling; and that a 50 percent reduction of diesel idling from these Class 8 trucks is achieved.

The cost analysis assumes a 5-year lifetime for idling technology equipment, applied to all Class 8 vehicles, at a cost of $2,165 per vehicle and a $3.00 per gallon diesel cost.

Program administration costs, enforcement costs, and fines have not been factored into the cost analysis. Reduced vehicle maintenance costs have not been factored into the analysis.

Key Uncertainties:

It is unknown whether a 50 percent penetration in reducing idling emissions from the Class 8 vehicles could be realistically achieved. Additional reductions from idling emissions could be achieved by buses. The distribution of technology that would be selected by these trucks or fleets to reduce their emissions is highly uncertain. This will have a significant impact on the overall cost/cost savings of this measure. The use of these technologies will also cause a slight decrease in the CO2 and fuel consumption reductions achieved. The use of truck stop electrification would increase emissions from electricity generation.

Equipment cost and lifetime will vary by technology employed. The cost value selected was based on survey data performed by American Transportation Research Institute, representing the average of the capital costs the survey respondents would be willing to pay for idle reduction technology. The cost analysis does not take into account the number of vehicles that have already installed idle reduction technologies.

Ancillary Benefits and Costs, if applicable:

Feasibility Issues, if applicable:

Status of Group Approval: (Pending or Completed)

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):

FUELS

TLU-5 Standards for Alternative Fuels

Policy Description: Develop and enforce standards for ethanol, biodiesel, and other alternative fuels in order to ensure fuel quality and reduce performance problems with these fuels, and to enable more widespread acceptance of these fuels.

Policy Design: Develop and enforce a state standard for neat biodiesel (B100), biodiesel blends, and ethanol blends. For biodiesel blends, the biofuel portion and the petroleum diesel portions of the fuel are separately regulated through ASTM standards; however, no standard is currently in place for the blended biodiesel. Similarly, for ethanol blends, E85 and the gasoline portion of ethanol blends are regulated by ASTM standards. Arizona currently has legislation pending that would also regulate the ethanol portion of ethanol blends. This measure is intended to support that legislation and provide a backup provision if the legislation does not pass. The base gasoline for ethanol blends must meet the standards for gasoline sold in that area. Enforcement of the standard should be designed to ensure that fuel taxes are being paid and that blenders are registered with the State. To reduce fraud, the measure should ensure fuel that is delivered is as advertised, and eliminate consumer problems. Enforcement of this standard would be led by the Arizona Department of Weights and Measures. Certain exemptions might be acceptable (e.g., a school district blending biodiesel for use in its own school buses and not for outside sale). These standards should be in place by the end of 2008. Increased funding and resources are needed for enforcement of this measure. Through the National Energy Act, growth in alternative fuels is expected in the near term. This measure will ensure that these alternative fuels sold in Arizona meet quality standards. This measure would also be broadened to include other alternative fuels that may be sold in Arizona.

- **Goal levels:** N/A
- **Timing:** Standards should be in place by the end of 2008 to encourage the use of biofuels within the State.
- **Parties:** AZDWM, ADOT, ADEQ, local jurisdictions, school districts

Implementation method(s): (provide category from standard CCS list, with details as needed)

Information and education: Information and education will be used to disseminate information to industry and public

Codes and standards: Support the provisions of HB2590: HB2590 is the E85 bill. The current bill does several things. First it adopts ASTM D5798-99 as the standards for E85. It sets standards for the equipment that will be dispensing E85 to ensure compatibility with the corrosive nature of E85. It establishes reporting requirements that will track product quality and amount of E85 produced. Finally, it requires that the gasoline portion of the E85 must be Cleaner Burning Gasoline in the CBG Covered Area. This is a consistent approach with how EPA deals with E85 in RFG areas. Recommend that EVR at retail be required for E-85 (or parallel to approach CARB is currently investigating). (Note: this bill was enacted by the State Legislature in April 2006.)

Currently under A.R.S. 41-2083(K) through (N), the Department of Weights and Measures regulates the quality of biodiesel. The current law requires that biodiesel must meet the specifications in ASTM D6751 and that the diesel portion of the biodiesel must meet ASTM D975. This should help protect the consumer. Again, as in the proposed legislation, the current law requires reporting to track volumes and help ensure the quality of the product.

Enforcement: Increased funding and resources for enforcement. Currently, the Department, under A.R.S. 41-266, has the authority to enter a facility, take samples, seize evidence, and take

product off sale if it is found not to conform to State standards. State inspectors currently inspect fueling facilities throughout the state and check fuel quality and compliance with our regulations. These powers and duties are also codified in the department rules under R20-2-104. These rules will need to be clarified to indicate where the standards will be enforced and the fines that will be levied for violations.

Related Policies/Programs in place:

Types(s) of GHG Benefit(s): (indicate which GHGs to be reduced)

This measure, by itself, will not reduce GHG emissions, but by having standards in place to ensure the quality of alternative fuels, should lead to increased consumer confidence in the alternative fuel supply, thus leading to increased use of alternative fuels. It should be assumed that, at a minimum, these measures will enable Arizona to meet the alternative fuel penetration goals from the National Energy Act.

Key Uncertainties:

Ancillary Benefits and Costs, if applicable:

Feasibility Issues, if applicable:

Status of Group Approval: (Pending or Completed)

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):

TLU-6 Gasoline Tax

Policy Description: A tax on gasoline could reduce overall demand for fuel and related carbon dioxide emissions as well as providing a source of revenues for investment in efficient and low emitting transportation systems that further reduce emissions related to passenger vehicles.

The CCS straw proposal offered here suggests a small increase in the gasoline tax to fund low-GHG travel options (rather than a large increase that would have a direct "price effect" on the demand for gasoline). With consumption of approximately 95 million barrels per year of gasoline and diesel in 2010, each one cent increase in the state fuel tax would raise about $40 million. This amount would increase in 2020 to $52 million.

Policy Design: Starting in 2008 continuing through 2020 gasoline and diesel and for passenger vehicles in Arizona would be subject to an X%/$x tax on carbon content/fuel volume.

This tax should be dedicated to funding low-GHG travel options, such as mass transit *[Note: There is overlap between this measure and ES-8 Carbon Tax.]*

- **Goal levels:**
- **Timing:**

- **Parties:**
- **Other:**

Implementation method(s): Straightforward use of existing tax mechanism. However, it appears that Article 9, Section 14 of the State constitution would need amendment. It reads: "No moneys derived from fees, excises, or license taxes relating to registration, operation, or use of vehicles on the public highways or streets or to fuels or any other energy source used for the propulsion of vehicles on the public highways or streets, shall be expended for other than highway and street purposes…"

Related Policies/Programs in place: Arizona's current gas tax is 18 cents/gallon for both gasoline and diesel for passenger vehicles. Various state fuel taxes range from about 14 to 33 cents/gallon (see http://www.taxadmin.org/fta/rate/motor_fl.html for a comprehensive listing).

Types(s) of GHG Benefit(s):

Key Uncertainties:

Ancillary Benefits and Costs, if applicable:

Feasibility Issues, if applicable:

Status of Group Approval: (Pending or Completed)

Level of Group Support: (Unanimous Consent, Supermajority, Majority, or Minority)

Barriers to consensus (if less than unanimous consent):